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ABSTRACT

An elementary level nutrition unit provides teachers with student background information, suggested activities, and student worksheets. Part 1 focuses on the relationship of food to growth, health, and energy. In part 2, students learn about the four main food groups. Part 3 deals with nutrients and provides information about carbohydrates, fats, vitamins, and minerals. Maintaining a caloric balance is the focus of part 4, which compares caloric expenditures of various activities, and the caloric content of various foods. Appendices include nine student worksheets and a unit test. This document is part of a collection of materials from the Iowa Area Education Agency 7 Teacher Center project. (LH)

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NUTRITION

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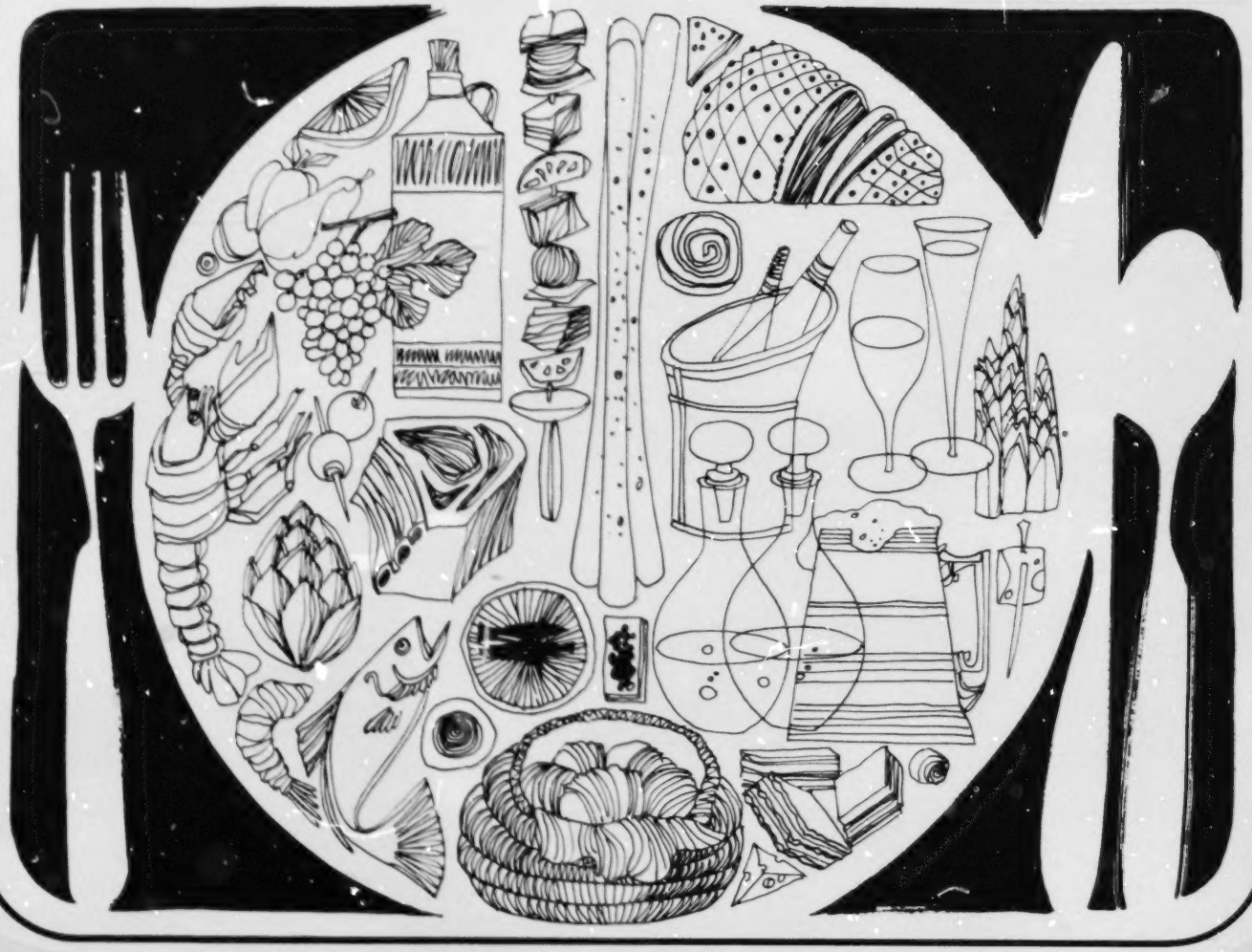

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INTRODUCTION

In this age of junk food, it is becoming ever-more important that we stress good nutrition to our young people. We must put an emphasis on this in the schools and hope that it carries over into the home. You will notice that this unit brings in the parents several times. It is important that parents, as well as children, understand what good nutrition is. Parents should be asked to reinforce at home what their children are learning in schools. In all areas of learning, children succeed most noticeably when what they learn in school is valued at home; especially in the area of food choices.

When the unit is started, a note should be sent home, so parents are alerted to the ongoing nutrition unit. For example: During the next few weeks, your child's class will be doing nutrition activities. Is there anything in particular you would like him or her to learn? How to pack a lunch? How to read a label on a can? Which snacks are nutritious?

PART 1: WHY YOU NEED FOOD

This part discusses the relationship of food to growth, health, and energy.

A. As an introduction, ask these questions:

1. What is a healthy child? It should be stressed that:
   a. A healthy child grows properly.
   b. A healthy child has healthy teeth with few cavities.
   c. A healthy child is not absent from school frequently due to illness.
   d. A healthy child has much pep and energy.
   e. A healthy child enjoys life and is alert.

   (The above statements are good starting points for a lot of discussion).

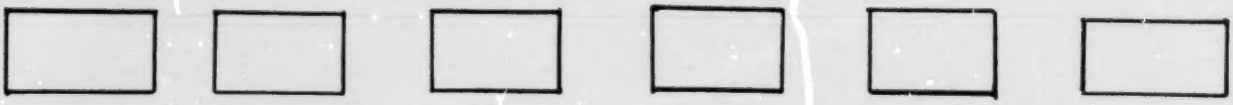
2. What do you need to be healthy?
   You need food and activity.

B. What Are You Made Of?

Your body is made up of millions and millions of tiny parts called cells. There are bone cells and blood cells and brain cells and stomach cells and many other kinds. Each has a job to do in your body.

When cells get worn out, new ones are made by your body! The food you eat helps your body make these new cells and keep the older ones alive and working for you. Some cells (1) Protect your body from germs. (2) Fix cuts and breaks. (3) Help you think.

When your cells are not fed, how do you think you feel? Put an X in the box that tells your answers. (This could be put on the chalkboard.)



Peppy or Tired Strong or Weak Healthy or Sick

At this point use Worksheet #1. This could be made into a transparency or a master or both. It shows the kinds of cells that make up the tongue. Some of the cells help the tongue move about. Some help it taste. There are also blood cells, fat cells, and nerve cells. The nerve cells help you feel things such as heat, cold, touch, and pain.

At this time, use Worksheet #2 showing the different parts of a cell. The cytoplasm is the fluid that is like jelly within the covering of each cell. It is mostly made up of water. The nucleus is the cell's control point. It contains a master plan that controls almost everything the cell does. The thin covering of the cell is called the membrane. A cell reproduces (makes more) by dividing. Every minute, about 3 billion cells die and 3 billion more are made.

Other things to do:

1. Take a few biology books from a high school and let the children observe photographs of cells.
2. A teacher from the high school or someone from the health deparment might bring in a microscope so the children can observe the cells.

C How Do You Grow?

Use Worksheet #3. This sheet explores the changes in body size as a child grows. Color the strips as shown.

Cut along the solid lines. Separate the strips according to color and tape together. The message should read from left to right.

Green: I was only about this tall when I was born.

Red: I am about this tall now. Food makes me grow.

Blue: When I grow up, I will be about this tall. I will need food and lots of play to grow as tall as I should.

These represent the average height of an infant, a nine year old, and an adult. The students might want to tape these up at home to see their growth.

It would be appropriate to have a discussion here about growth. Not everyone looks alike. Children differ in height and weight, body build, color of hair and eyes, interests, and abilities. Discuss what controls their final size (parents' size). Heredity we cannot control but we can control whether we grow as big as we were meant to be. You could demonstrate this with plastic building blocks. If you are making a building and there are no more blocks to use, you would put the roof on anyway, even though the building would be smaller than it was meant to be. With the right variety of foods and the right amount of rest and exercise, the child will grow to his or her potential. Not everyone will be the same size. All body parts do not all grow at the same time i.e. the teeth grow to their full size before the rest of the body.

Other activities:

1. To see the growth of fingernails, put some polish on one fingernail of each child. If they can keep it on for several days, they will be able to see white edges sticking out where that fingernail has grown.

2. Make a bulletin board "How I Have Changed". Use baby and current pictures of the children. A game could be made out of matching the pictures.

3. String a clothesline across the room. Send a note home and have any children who can, bring a piece of baby clothes that they once wore and hang these on the clothesline.

4. Each child could make a growth record on a piece of wrapping paper. Information could be recorded in the Fall, Winter, and Spring. Hands and feet could be traced and height and weight measurements recorded.

	Fall	Winter	Spring
HAND			
FOOT			
HEIGHT			
WEIGHT			

D. Energy and the Body

Here is a story that compares a car needing fuel to our body needing food to make it go.

Story-The Body Engine

Jeff and Cindy Jones' father took them to the baseball game last night and the trip there and back was so long that it made them very tired. Because they were so tired, they woke up late this morning and had to ride

to school with their dad. When they were about half way to school, the car just stopped. . . .

Mr. Jones got out of the car and lifted up the hood. Inside was the engine.

Jeff said, "I think that big engine is what makes the car go."

Cindy said, "If it makes the car go, then why aren't we going?"

Jeff said, "I don't know. Dad, why won't it go?"

Mr. Jones explained that an engine is not enough. The engine must be fed before the car can go.

Mr. Jones also told Jeff and Cindy that there are many different kinds of engines, but that they can all burn their fuel to make heat and energy. Energy is what makes everything go!

Mr. Jones told Jeff and Cindy that people have engines too. Their engine is their body and it has to be fed. He asked Cindy if she knew what the body engine's fuel is.

She thought for a minute and answered, "Food."

Jeff said, "But Dad, how does the food make me move?"

Mr. Jones said, "It burns like the fuel in a car, only much slower and without flames. It may seem hard to believe but food does burn in your body even though you can't see the flames. Feel your cheek. It's warm. The heat comes from inside your body, where the food you eat burns and makes heat.

Jeff thought again and asked, "Can I eat just once and have enough fuel for always, Dad?"

Mr. Jones replied, "Well, Son, the problem with the car right now is that the fuel supply is gone because we used all the gas for the trip to the ball game last night. You see, a car can only hold enough fuel for a short time. Your body is the same way. If it doesn't get enough fuel, it will eventually stop running, so you must supply it with food fuel every day."

Jeff was happy because now he understood why he needed to get food every day.

Cindy looked at her watch and said, "Gosh, Dad, We're going to be late for school. Is there any way to get the car started?"

Jeff said, "Look, Dad, there's a gas station right down the street."

And very soon the Jones car engine was filled with fuel.

Did you have your fuel for your body engine today?

Other Activities

1. To show that the body produces its own heat, bring a thermometer to class and take your temperature both inside and outside the building.
2. Try different ways of moving from place to place such as hopping, wiggling, and jumping. Keep in mind that it takes energy to do all of these things.

Then, have each child plan one day of menus, including all of the four food groups and remembering how much of each group you need. Mention the different ways that the foods may be eaten such as fruit juice with breakfast or cheese as a snack. During this part of the unit, it is also appropriate to use the following worksheets:

#4 - Eating Good Food
#5 - Milk Is Our Best Food
#6 - Fruits are Good for Us
#7 - A Good Breakfast
#8 - A Good Dinner
#9 - Eating Between Meals

Here Is A Poem to Share With the Kids:

My Eating Guide

Does what I'm eating every day
Give me the foods that doctors say
A child should have to help him grow?
Now let me check the list below.

The dairy foods all taste so good
In meals I eat each day.
The milk and cheese and ice cream, too,
All help me work and play.

The meat and eggs and fish and nuts,
Will help to make me strong,
For with my milk, they help to build
My muscles all year long.

The fruits and vegetables may come
In yellow, red or green.
They look so pretty, taste good too,
As in my meals they're seen.

Good cerals, both hot and cold,
Help keep me nicely fed.
Along with them, I like to eat
My bread with butter spread.

Inside these many foods I like,
It's always good to know,
Are vitamins and minerals
That help me grow.

PART II: YOUR DAILY FOOD GUIDE

All food is divided into four main groups:

1. Dairy group (3 helpings per day)
2. Meat and protein groups (2 helpings per day)
3. Fruit and Vegetable group (4 helpings per day)
4. Bread and cereal group (4 helpings per day)

Learning to accept certain foods is just as important as learning which foods go in which groups. Children must have good attitudes to make the right food choices.

1. Have each child draw a picture of his/her favorite meal. Display the drawings and have each child describe the meal. Emphasize that although the meals differ greatly, no particular way of eating makes one person better than another. You can get some valuable insight into the food habits of the children.

2. To talk about liking new foods there are several things you could do. Bring someone into the room to tell a story of how they learned to like a new food. Then have each child write or tell the story of "How I Learned to Like _____."

   or

   You might want to start a "Try it. . . You"ll like it club". Here again you can get parents involved. Send a note home that says that if their child eats one serving of a food he or she normally wouldn't try, please write his or her reaction to it on an attached form and send it back to class.

3. Children should realize that the same food appears in many different ways. You could take eggs, for example, and fix them in different ways in the classroom. Or, containers from various forms of the same foods could be brought in. Tomatoes which are canned, fresh, stewed, reduced to paste, or in the form of catsup, juice or spaghetti sauce might be brought in and tasted.

To emphasize what foods are in each group, have children cut pictures out of magazines and make large posters of the basic four food groups.

PART III: WHAT FOOD IS MADE OF - NUTRIENTS

INTRODUCTION

Eating right means that you must have a balanced diet. Not all foods are alike. And not all foods do the same things for you. Some foods help your bones grow. Some make you see better. Some give you energy fast-just when you need it. That's why you need many foods-and this is a balanced diet-some of everything.

Foods contain many different nutrients. A nutrient is anything that nourishes. . .and something that nourishes is necessary to make people grow and keep them healthy. There are nutrients for plants, for animals and for people-and they are very much alike.

People nutrients are called proteins, carbohydrates, fats, vitamins, and minerals. Most foods contain more than one nutrient. But no one food contains enough of all the nutrients. That's why you have to eat many different foods to have a balanced diet. You can't see these nutrients, but they're there just the same.
To reinforce proteins, you can play the "What Proetin Am I?" game. Cut out different pictures of proetin foods and paste them on sheets of colored paper. Pin one on the back of each child without him seeing the picture. Each child comes to the front of the class. In turn

he asks the others questions about the food pictured on his back. The rest of the children can only answer yes or no. He must guess which food he is.

CARBOHYDRATES

Foods containing sugar and starch are rich in carbohydrates. They give you lots of quick energy. Carbohydrates are found in some of your favorite foods like candy, jams and jellies, sodas, cakes and pies, spaghetti and bread. They are also in fruits and vegetables. Even though you need carbohydrates and you eat more of them than anything else, you must be careful not to eat more than you need because the extra can turn into fat.

You can test some foods for starch by doing an iodine test. Select several foods to bring in. Add a drop or two of tincture of iodine to the cut surface. The presence of starches will be shown by producing a deep blue color.

FATS

Fats give you twice as much energy as carbohydrates. They stay in your stomach longer than anything else, so they keep you from feeling hungry too soon after a meal. Fats also make other foods taste better, like the margarine you spread on your bread. Fat-rich foods are margarine, fatty meats, oils, cream cheese, mayonnaise, salad dressings, peanut butter, and peanuts. You must be careful not to eat more of these fat foods

than you need, either, because they can stay around and make you fat, too.

Foods containing fats will leave a permanent spot after being rubbed on brown paper. Cut out several squares from a brown paper bag. Bring in several fatty foods and rub each one on a different square. If a wet looking spot appears and does not dry after a few minutes, the food contains fat.

VITAMINS

They do many things and there are many of them.

A - Helps you keep smooth, healthy skin, helps you see well at night and helps keep you from catching cold and other germs. Found in margarine, green and leafy vegetables, milk, butter, egg yolk, liver, peaches, cantaloupe, dried apricots, and prunes.

B - (Thiamin) is to help keep nerves healthy, aid good digestion and help you use carbohydrates for energy. Found in meat, (pork and liver) enriched and whole grain breads and cereals, eggs and dried beans and peas.

B_2- (Riboflavin) is needed to help you keep your mouth and eyes healthy and help you use oxygen. Found in milk, eggs, peanuts, peanut butter, liver, fish, enriched breads and cereals.

C - (Ascrobic acid) helps keep your gums, skin and muscles healthy, helps build strong teeth and bones and helps keep you from catching germs. You need citrus fruits (oranges and grapefruit), tomatoes, cantaloupe, or strawberries every day to get enough Vitamin C. Your body doesn't store this like it does other nutrients.

D - Helps you build strong teeth and bones and to make your legs strong and attractive. Found in sunshine, in fish-liver oils, and in most milk.

Niacin-helps keep your skin and nerves healthy and helps you use other nutrients. Found in liver, fish, lean pork, veal and beef, eggs, enriched breads and cereals, and peanuts.

MINERALS

Calcium - To help build your teeth and bones; to help stop you from bleeding when you cut yourself; to help your heart to beat and your muscles work. Found in milk, eggs, cheese, turnip greens, and peanuts.

Phosphorus -Also to help build bones, teeth, nerves, and to help you use other nutrients for energy. It is found in the same foods that calcium is found in and also in seafood, meat, cereal, and vegetables.

Iron - Need it to build good red blood. Foods rich in iron are meats (especially liver) egg yolk, leafy dark green vegetables (like spinach), enriched breads and cereals.

Copper - Also makes good, red blood. Found in same foods which contain iron.

Iodine - This controls the way you use your energy. You can buy iodized salt and you can eat frozen, fresh, or canned seafood.

Water is really not a nutrient but it is very essential. It makes up 2/3 of the body weight. You couldn't get along without water for more than a few days. You lose a lot of it when you run or play hard and perspire, so you should always have plenty of water or other liquids every day to satisfy your thirst.

Bring several raisins and some fresh grapes to class. Have students examine the difference in these two forms of a grape. Then dehydrate half the raisins by bringing them to a boil in water. Let stand for a few minutes. Drain the plumped raisins and compare to the fresh grapes. Note that the grape is a fruit that grows on a live plant. Once the water is removed, the shape, color, and feel of the grape is forever changed. Taste the difference in the three forms of a grape or bring in some dried or freeze-dried

foods for the children to examine. These foods have most of their water removed.

Culminating Activities for Part III

1. Bring exmpty boxes and cans, such as cereal boxes, bread wrappers etc. and put them in groups to make displays such as: "The foods in this group are good for your bones and teeth".

2. You might want to use some students out of 5th or 6th grade for this. Have each child lay down on a 5-foot piece of paper and have someone trace around him. Then they can draw different foods or cut them from magazines and paste them around the body. They then draw lines from the foods to the part of the body which is aided by that food.

PART IV: EATING TOO MUCH

How much food-how much of each nutrient do you need every day? Do you need a lot less than your Daddy because he's bigger? Maybe not. Remember-you need a certain amount of food for your size, but you also have to figure out what you do. And you have to figure that you are growing and you need extra nutrients to help you grow right-and stay that way.

A football player often loses as much as 15 pounds in a big game. A lot of this is water, but a lot is his water, too. That's why a football player needs body-building protein, as well as quick energy foods just before the game. A breakfast on a game-day would include a couple of eggs and a steak and plenty of milk-in addition to toast and maybe some cereal.

Good nutrition-good balance in your meals-makes you better in all sports, because you are stronger and have better muscles if you eat the right foods.

Good nutrition makes you able to play the whole game, not get tired after the first quarter or first inning.

Good nutrition may mean clear, smooth complexions and prettier hair because balanced meals can keep hair shiny.

It's easy to plan your calorie balance. The more you move, the more calories you need. The more you sit, the less

you need. If your favorite exercise is watching TV, you need a lot less then the boy or girl who runs and jumps everyday.

Everything you do uses up calories. The amount used is based on weight plus activity. So-if you weighed 80 pounds, in ½ hour you would use up the following calories doing the following things:

resting	16
reading aloud	28
walking	56
running	160
swimming	184
horseback riding	104

Here is a chart to tell you what the average boy and girl should have every day.

	Ages 7 to 9 (60 lbs., 51 in. tall)
Boys	2100 calories
Girls	2100 calories

Here are some of the calories in foods. They are all average servings:

MEAT GROUP

Beef round steak, ground (lean hamburger)	200	Frankfurter	125
Beef roast (lean)	200	Bacon (3 strips, fried)	145
Veal cutlet	235	Smoked ham	185
Liver	180	Lamp chop	100
Roast chicken	170	Egg (1 arge)	80
Scallops	90	Chili with beans	180
Shrimp	110	Chicken soup	50

VEGETABLE-FRUIT GROUP	
Asparagus	35
Green beans	25
Beets	45
Black-eyed peas	75
Peas	55
Carrots	45
Potato	95
Spaghetti (no sauce)	110
Apple	75
Orange	70
Grapefruit (½)	75
Strawberries	55
Pear	95
Orange juice	85
Tomato juice	50
Watermelon	90
Mixed green salad (with dressing)	85
Cole slaw	70

DESSERTS	
Flavored gelatin	80
Brownie	105
Cherry pie	390
Cookie	75
Chocolate pudding	190

MILK GROUP	
Milk (1 glass)	160
Skim milk (1 glass)	80
Chocolate milk shake	420
American cheese (1 slice)	110
Chocolate ice cream	200

BREAD-CEREAL GROUP	
Cream of wheat	130
Corn flakes	95
French toast (1 slice)	185
Sweet roll	180
White bread (1 slice)	65
Rye bread (1 slice)	60
Danish pastry	140
Pancake (1)	65

SNACKS	
Peanuts	110
Pretzels (1 large)	60
Potato chips (10)	110
Popcorn (1 cup)	65

SANDWICHES	
Hamburger	380
Chicken salad	325
Bacon, lettuce, tomato	280
Cream cheese and jelly	370
Peanut butter	330

1. Now, keeping in mind the basic four groups and also the calories in food, as a class plan a menu for a day, including a snack or two. Then you might want to divide up into groups of 3 or 4 and have each group plan a menu for a day.

Breakfast:

Lunch:

Dinner:

Snack:

2. On paper plates, have each child assemble a lunch that is too large (using cutouts from magazines or drawings of food). Have each child come to the front of the room and let the class discuss what is wrong. Ask if the lunches contain a food from each of the groups. Ask if their lunch contains any foods of low nutritional value. Ask them what foods they can remove or cut down on to make their lunches more appropriate in size. Eating too much too often is what causes weight gain.

CULMINATING ACTIVITY FOR UNIT

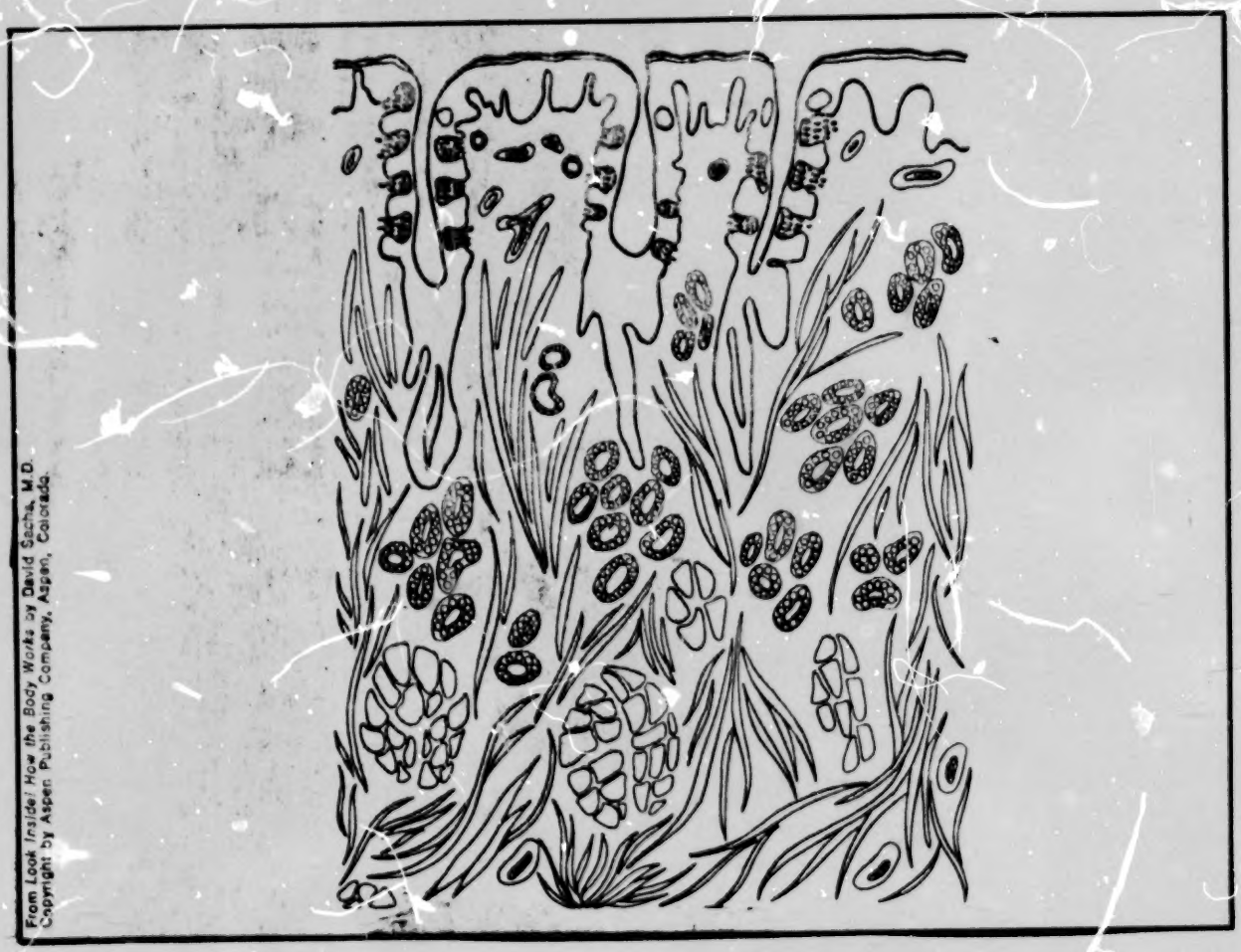
A party with parents could be a good ending activity for this unit. Parents take pride in seeing their children's achievements and a party offers students an enjoyable learning experience. The children can first decide what snacks would be nutritional to have and then make a shopping list of what needs to be bought. Then, by planning and preparing the snacks, they put into practice their growing understanding of nutrition facts.

As entertainment for the party, some children might prepare a one-minute "commercial" to sell their parents on the idea that a peanut butter sandwich is the beginning of a good breakfast. Others might write up a series of nutrition questions which could be used in a Spelling Bee type game.

Children will be able to relate good nutrition to themselves and their families and realize that it is important outside the classroom too.

Worksheet # 1

THE TINIEST PARTS



From *Look Inside! How the Body Works* by David Sachs, M.D.
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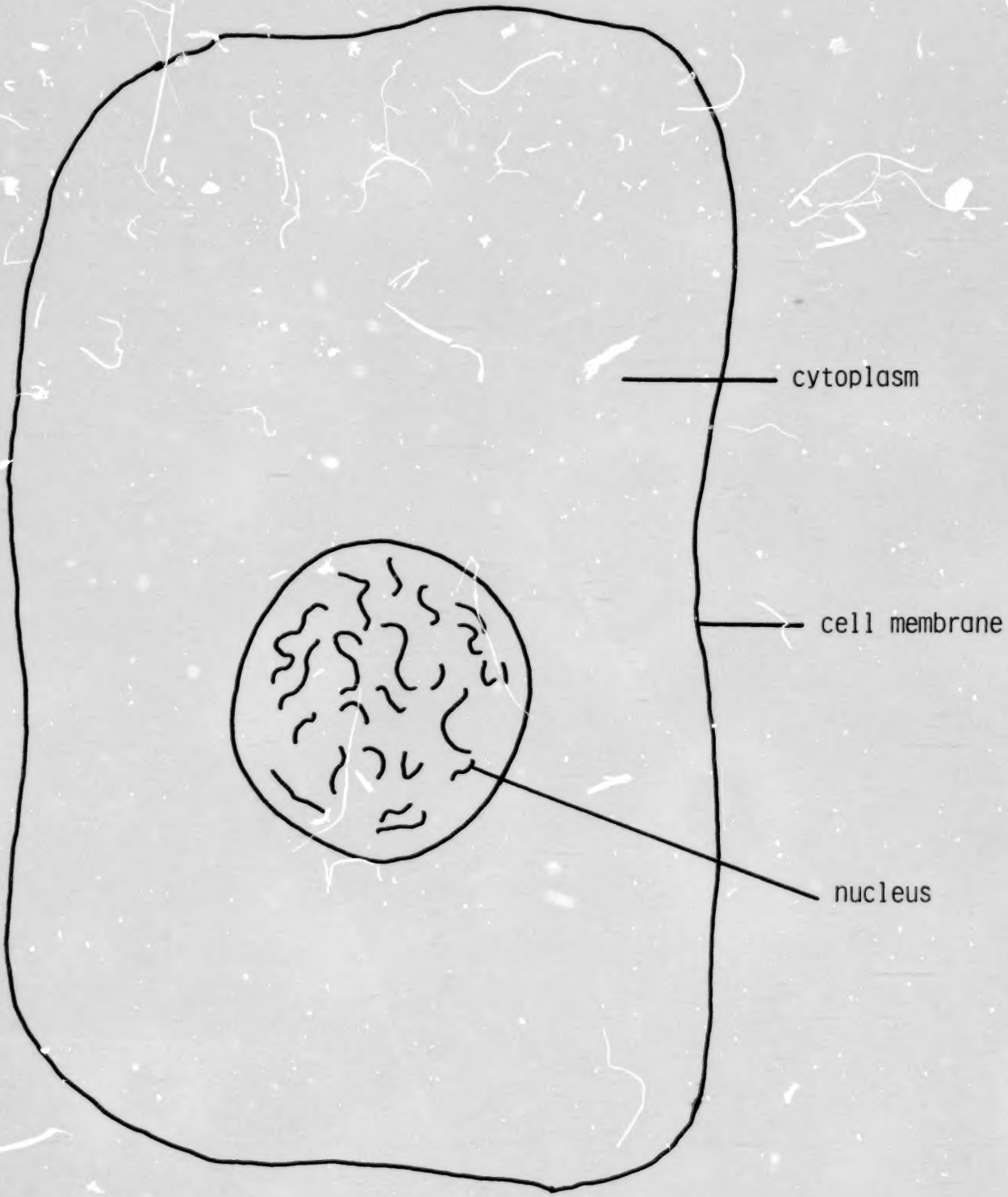
Worksheet #2

The Cell



Worksheet # 3

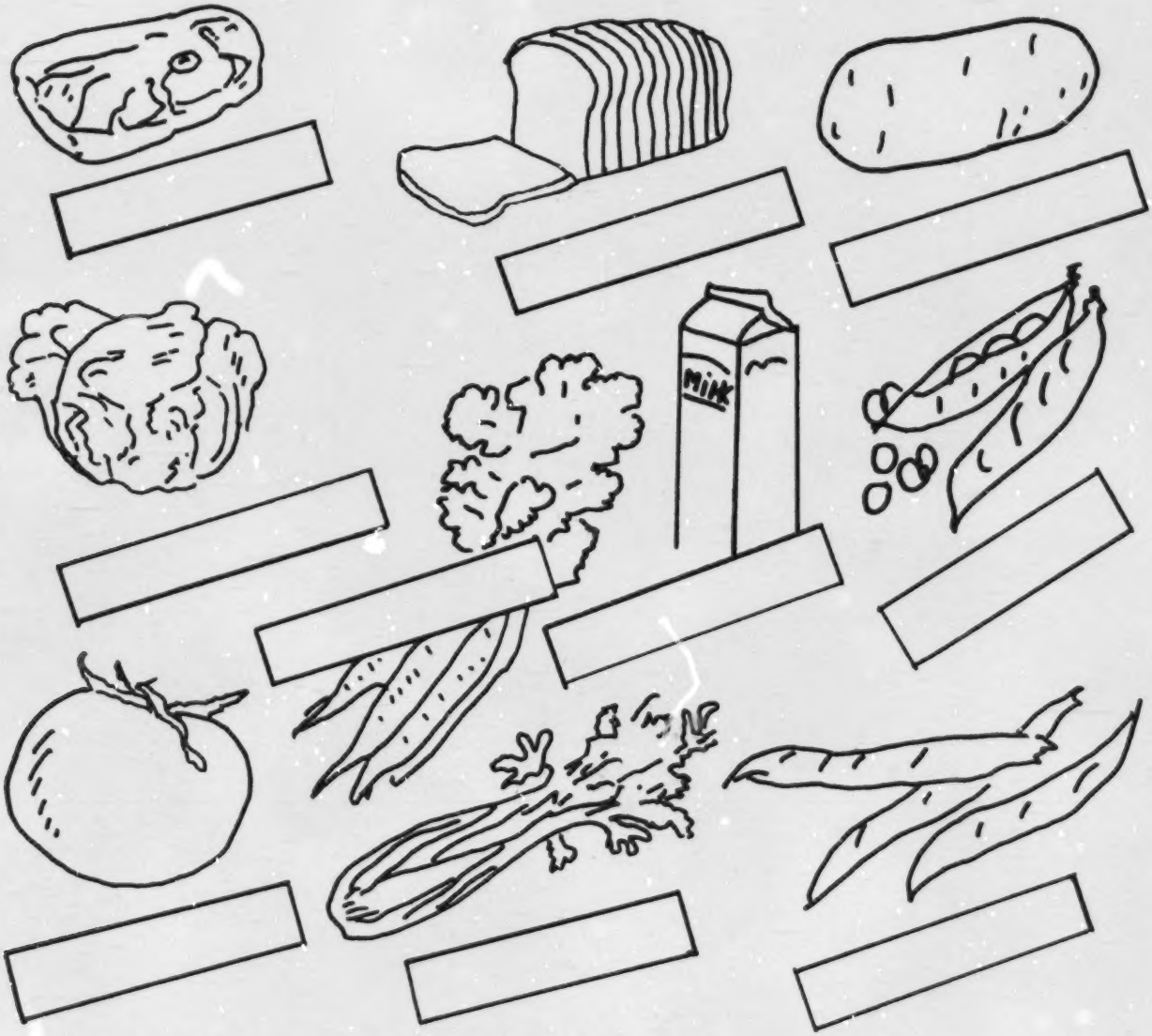
Color the Strips. Cut them out. Put the ones that are the same color together. Tape together.

Color up to this line and cut at the line if you are a girl. Use the whole strip if you are a boy.	WHEN I GROW
ME GROW.	Red
ABOUT THIS TALL.	Blue
THIS TALL	Red
TALL WHEN I WAS BORN.	Green
AND LOTS OF	Blue
UP, I WILL BE	Blue
NOW.	Red
TALL AS I SHOULD.	Blue
I WAS ONLY ABOUT THIS	Green
I AM ABOUT	Red
PLAY TO GROW AS	Blue
FOOD MAKES	Red
I WILL NEED FOOD	Blue

Worksheet # 4

Put in the missing letters.

GO__ D F___OD MAK____S S____RONG BOD____ES. THESE FO___D___ ARE GO____D FOR M____.



Put the names in the right boxes.

meat	tomato	potato	celery	peas
lettuce	bread	milk	beans	carrots

MILK IS OUR BEST FOOD

Good Health Rule

I will drink a quart of milk every day.

Breakfast

Dinner

Lunch

Copy the good health rule below.

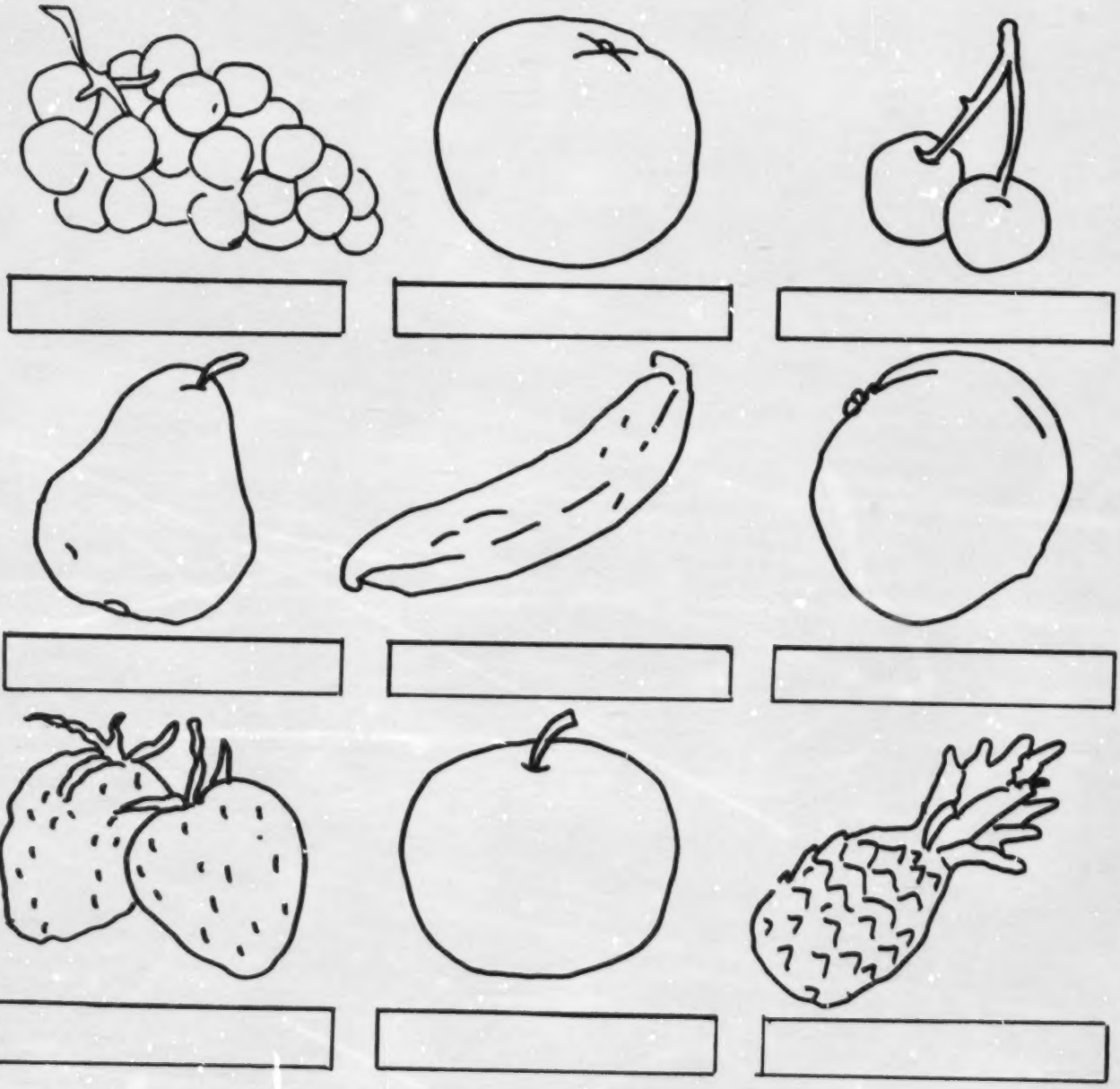
Put a red border around it.

Worksheet # 6

FRUITS ARE GOOD FOR US

Put the name of each fruit in the right box.

cherry	pear	grape
banana	apple	orange
peach	strawberry	pineapple



Color these fruits.

Worksheet # 7

A GOOD BREAKFAST

Put hands on this clock to show what time you eat breakfast.

Color the things in the picture.

Write the names of the things on this breakfast table.

_____ _____

_____ _____

_____ _____

_____ _____

Put a star before the name of each of these things you had for breakfast.

A GOOD DINNER

Put hands on this clock to show what time you eat dinner.

Color the things in the picture.

Write the names of the things on this dinner table.

_____ _____

_____ _____

_____ _____

_____ _____

Put a star before the name of each of these things you had for dinner.

Worksheet # 9

EATING BETWEEN MEALS

BREAKFAST

Tell what is wrong in this picture.

Put the time at the side of each clock.

LUNCH

Color the things in this picture.

TEST Answer yes or no

1. _____ Does each cell have 4 parts?

2. _____ Are the building blocks of the body called muscles?

3. _____ Do we need foods from all 4 food groups every day?

4. _____ Do cells divide to make new cells so our body can grow?

5. _____ Do we use a telescope to look at cells?

6. _____ Is it right to eat candy for breakfast?

7. _____ Do foods with carbohydrates give you a lot of energy?

8. _____ Are there many different kinds of vitamins?

9. _____ Is water really a nutrient?

10. _____ Do you need more calories if you are more active?

11. _____ Is it possible to eat too much?

12. _____ Do you have to eat many different foods to get a balanced diet?

Name some foods in each group.

Meat Group

_____

_____

_____

_____

_____

Breads and Cereals

_____

_____

_____

_____

_____

Vegetable and Fruits

_____

_____

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